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Hughes, Hilary, Cooper, Liz, Flierl, Michael, Somerville, Mary, & Chaudhary, Niraj
(2018)
The role of the university library in supporting international student transition: Insights from an Australian-American case study.
Journal of Academic Librarianship, *44*(5), pp. 582-594.

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https://doi.org/10.1016/j.acalib.2018.06.003

The role of the university library in supporting international student transition: Insights from an Australian-American case study

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Journal of Academic Librarianship
DOI: 10.1016/j.acalib.2018.06.003
Published online 28 June 2018

Abstract

As an outcome of the Libraries and Information for International Students Project (LIISP), this paper presents insights into first year international students' experiences of using library resources, services and spaces at their host university. It focuses on a collective case study conducted between 2014 and 2016 at one Australian and three North American libraries, with 320 first year international students. The research design was informed by the Project Information Literacy study of US first year domestic students' library use (Head, 2013). Data were collected via survey and semi-structured interviews, and analyzed thematically. Findings of the four cases were compared with each other, and with the PIL study. Four key insights emerged:

- International students are characterised by their diversity and individuality.
- First year international students' library and information use, and associated challenges are generally similar to those of US domestic first year students transitioning from high school to university.
- The challenges international students experience generally relate to unfamiliarity of the socio-cultural environment and academic and library practices at their host university, rather than generalised educational deficit.
- The library is vital to supporting international students' transition to life and study at a host university.

The findings inform library space design and inclusive transition support that integrates informed learning and transition pedagogy. They are relevant to university administrators, librarians and educators in culturally diverse higher education.

Introduction

Within culturally diverse higher education, libraries play an important role in students' successful transition to university. Seeking deeper understanding about the support needs of incoming students from diverse cultural backgrounds, the Libraries and Information for International Students Project (LIISP) investigated the library and information use of first year international students at one Australian and three North American universities. The paper introduces the context of internationalization in higher education, reviews relevant literature, outlines qualitative collective case study methodology, and compares the findings from the four universities with those from a study of American first year domestic students (Head, 2013). The final section discusses implications of the findings and presents recommendations to other universities for supporting student transition through the provision of culturally inclusive library spaces and services, and programs that integrate informed learning and transition pedagogy.

Background: LIISP in the international education context

Diversity is now "mainstream" in higher education (Kettle, 2017, p. 172). In the United States, 1.08 million international students studied at US colleges and universities in 2016-7, making up 5% of the student population and contributing $39 billion to the economy (IIE, 2018). In Australia, approximately 350,000 international students studied in Australian higher education institutions (Australian Government. Department of Education and Training, n.d.). International education accounts for approximately $19 billion of Australia's export income (Deloitte Access Economics, 2015). In addition to income, international students bring to their host universities international perspectives, which enrich learning and teaching, develop cultural literacy, and help prepare domestic students for global careers (Deloitte Access Economics, 2015; IIE, 2018). The competitive international education market requires universities to provide high quality, student-friendly physical spaces. Libraries in turn face significant demand to provide services, resources, programs and spaces that support learning across increasingly diverse student populations (Click, Walker-Wiley and Houlihan, 2017; Witt, Kutner & Cooper, 2015).

In this context of internationalization, the Libraries and Information for International Students Project (LIISP) builds upon the long-distance interdisciplinary collaboration of like-minded colleagues across four universities and two continents. The LIISP team incorporates the varied professional perspectives of a library director (Mary Somerville), a library IT director (Niraj Chaudhary), two faculty librarians (Liz Cooper and Michael Flierl) and an education professor (Hilary Hughes). At the time of the research, 2014-2016, we were based respectively at University of Colorado Denver, University of New Mexico and Purdue University in the United States, and Queensland University of Technology in Australia. Our alliance is influenced by a shared philosophy of educational equity for culturally diverse students through "good teaching for all students" (Leask, 2015, p. 11). We embrace the pedagogy of inclusive informed learning (Bruce, 2008; Bruce & Hughes, 2010; Bruce, Hughes, & Somerville, 2012) and aim to move beyond homogenizing and differentiating international students around perceived educational deficits (Leask, 2015).

Literature review: University libraries and international student transition

Setting the study's conceptual scene, this literature review outlines common challenges and opportunities of first year domestic and international students in transitioning to a host university. It introduces transition pedagogy and informed learning, which underpin our suggested approach to supporting first year international students.

Transition to university

Starting college or university generally involves "personal, social and lifestyle transitions" (Maunder, Cunliffe, Galvin, Mjali & Rogers, 2013). While first year students have widely varying backgrounds, they commonly may face a range of academic, social, cultural, administrative and environmental challenges (Kift, 2015). Many experience conflicting emotions, uncertain expectations and social disorientation, all of which can be particularly intense for students from under-represented backgrounds (Briggs, Clark & Hall, 2012). They are often challenged by the unfamiliarity of the tertiary education environment, academic discourses and expectations to be independent, self-directed learners (Kift, Nelson & Clarke, 2010; Maunder, Cunliffe, Galvin, Mjali & Rogers, 2013). Graduate students often experience similar transition challenges, especially with regard to "affective domain areas such as

confidence and self-esteem in learning skills" (Stagg & Kimmins, 2014). Therefore, commencing students at all levels may benefit from contextualized learning support to develop the information and academic literacies necessary to succeed in contemporary higher education (Head, 2013; Kift, 2015; Stagg & Kimmis, 2014).

A Project Information Literacy report indicates that new US domestic students are unified by "their inexperience, newness, and lack of awareness about information systems and resources available to them" (Head, 2013, p. 28). This extensive research examined the information using experience of domestic first year students in their transition from high school to college. In addition to interviewing 35 domestic students, it gained responses to an online survey from 1,941 high school and college students. The findings show that first year college students generally face considerable challenges in information searching, and comprehending and applying scholarly resources for research-based assignments. The participants' information literacy levels were generally quite basic, reflecting Google-centric search skills adequate for high school assignments but lacking higher level research competencies required at college. Having relied on familiar sources like Wikipedia in high school, many struggled with the "tsunami" (p. 28) of information in print and online formats available via the university library. Moreover, many domestic students appeared to be unaware of the nature and role of academic libraries and librarians. Their difficulties were compounded by limited understanding of university educators' differing expectations for a research paper. Perhaps indicating the positive contribution of academic libraries to first year student transition, PIL's follow-up end of first year survey showed development in students' information seeking, evidenced by greater use of scholarly databases and peer reviewed articles for assignments.

International student transition

There is increasing awareness of the diversity and individuality of international students. For example, they may be "first-generation students; they might come from a variety of cultures; some may be graduate or returning students; and they may be lesbian, gay, bisexual or transgendered" (Jacobson, & Williams, 2000, p.1). In transitioning to university, international students often share common ground with domestic students (Leask, 2015; Perry, 2016). For anyone, settling in a new place may bring anxieties about financial matters, health, social relationships, and even racial discrimination (Perry, 2016; Perry, Lausch, Weatherford, Goeken & Almendares, 2017). For international students, transition is often complicated by the move to a host country and a range of practical and emotional challenges (Hellstén, 2007). In particular, international students are often negotiating life and study through English as an additional language (Karim, 2010; Kettle, 2017; Montgomery, 2010).

The resilience and multiple strengths that international students bring to a host university are often overlooked. Rather than educational deficit, international students' challenges generally relate to the unfamiliarity of the academic and socio-cultural environment in which they have landed (Kettle, 2017; Leask, 2015). Therefore, some experts caution against deficit-based responses based on assumptions that international students share common cultural and linguistic backgrounds (Leask, 2015).

Libraries and international student transition

The university library offers international students a safe, central social gathering spot (Liao, Finn and Lu, 2007; Shaffer, Vardaman & Miller, 2010). They frequently use the library as a quiet place to use computers and study in groups (Datig, 2014; Knight, Hight & Polfer, 2010). However, academic libraries can also be daunting for those who have not had previous access to extensive resources and study spaces (Hughes, 2010, 2013; Liu, 2013; Peters, 2010). Although international students tend to visit the library and attend orientations (Liu & Winn, 2009; Shao, & Scherlen, 2011), they are not always aware of the full range of services offered by library staff, including research help and online chat (Knight et al., 2010; Shaffer, Vardaman & Miller, 2010). In using information for study, international students "share some of the same struggles as domestic students, but also face some unique challenges" (Houlihan, Walker Wiley & Click, 2017, p. 272). Like US domestic students (Head, 2013), international students tend to rely on Wikipedia, Google and the advice of other students for completing assignments (Knight et al., 2010). This suggests a continuing *information literacy imbalance* between practical digital skills and less developed critical information use (Hughes, 2013).

Many libraries provide services that aim to address international students' language limitations, interpersonal uncertainties and unfamiliarity with academic information practices (Peters, 2010; Jackson & Sullivan, 2011; Datig, 2014; Click et al., 2017). Strategies include cultural awareness programs for library staff, targeted instructional support to international students, and multilingual staff and information guides (Peters, 2010; Ye, 2009). Librarians support first year student transition in various ways including the provision of orientation tours, information literacy instruction and online guides, and various interactive initiatives like treasure hunts and quizzes (Hughes, Hall, Pozzi, Howard & Jaquet, 2016; Jackson & Sullivan, 2011).

While many proposed strategies are library-centric, recent research highlights the benefits of evidence-based information literacy learning that acknowledges students' diverse lived experience and existing capabilities as learners and users of digital technologies (Datig, 2014; Hughes, 2010, 2013; Saw, Abbott, Donaghey & McDonald, 2013). Moving away from deficit-focused instruction (Ye, 2009), librarians are collaborating with faculty and language support professionals to embed information literacy learning and cultural learning experiences across the curriculum, aligned with particular cohorts or assignments (Holderied, 2013; Debose & Miller, 2015).

Transition pedagogy

Many universities support student transition through first year experience policy and programs that focus on student retention and academic success (Nelson & Clarke, 2014; Nelson, Quinn, Marrington, & Clarke, 2012). Recent Australian developments in transition pedagogy respond holistically to students' leaning and social wellbeing. Transition pedagogy "scaffolds, mediates and supports first year learning for contemporary heterogeneous cohorts" (Kift, Nelson & Clarke, 2010, p.11). It recognizes that:

> The first year of university study is arguably the most crucial time for engaging students in their learning community and equipping them with the requisite skills, not only to persist, but to be successful and independent in their new learning throughout their undergraduate years. (Kift, 2009, p. 40)

Transition pedagogy builds upon an integrative intentional first year experience (FYE) curriculum which is conceptualized as "the totality of the undergraduate student experience of and engagement with their new program of tertiary study" (Kift, 2009, p. 9). This curriculum fosters inclusive, equitable learning among diverse student communities as:

> In all of their diversity, with their multiple identities and changing patterns of engagement, the curriculum is what all students have in common. (Kift, 2015, p.58)

The FYE curriculum develops students' sense of identity and connectedness at university, and supports learning through a coherent sequencing of knowledge, skills and attitudes over the student lifecycle (Kift, 2009). It has a whole-of-institution and whole-of-student emphasis on engagement and personalised support, built on cross-institutional partnerships between academic and professional staff. It is particularly suited to supporting the transition of international students as it attends to what students have in common. By acknowledging their diverse experiences and needs, it enables students to capitalize on their existing skills and knowledge. Thus, "In the spirit of social inclusion and widening participation, the FYE also speaks to social justice, equality and equity." (Kift, 2015, p. 59)

Inclusive informed learning

Transition pedagogy's concern with inclusive educational experience is similar to that of informed learning. In contrast to information literacy approaches that focus on developing generic skills, informed learning promotes a holistic learning approach that involves using information to learn actively, critically, creatively and ethically (Bruce, 2008; Bruce & Hughes, 2010). It aims to simultaneously extend students' knowledge and information using capacity through experiencing different ways of using information. It is immediately relevant to students' study context and personal life as they draw upon their existing knowledge while learning about particular topics. Informed learning underpins innovative curriculum design, such as the IMPACT program at Purdue University (Flierl, Maybee, Riehle & Johnson, 2017). Informed learning is essentially inclusive in attending to international students' transition and learning (Hughes & Bruce, 2013).

Limited comparative research

The LIISP project addresses limited comparative research about international students and their library and information use. There are plentiful accounts of good information literacy practice but few empirical studies, as a recent systematic review noted:

> The body of literature is heavily focused on library instruction/information literacy and library experiences of international students, but original research is lacking. As it is unlikely that the number of international students studying in the United States will begin to decline anytime soon, there are ample opportunities for further research. (Click et al., 2017, p. 345)

The few relevant studies include a comparison of international and domestic students at a United States university (Shaffer, Vardaman & Miller, 2010). Cross-institutional comparisons are also limited but include studies that cover: three US universities (Knight et al., 2010); two and three Chinese universities (respectively: Jiao, Zhuo, Zhou & Zhou, 2009; Shao & Scherlen (2011); and two Australian universities (Hughes, 2013).

Little research considers the library and information use of international students at non-Western universities, other than several studies from China (for example: Liu, 2013; Zhou,

Han & Li, 2017). Although focusing on domestic students, two studies offer further cross-cultural insights related to information literacy in differing contexts: at a US and a Kuwaiti university (Al-Muomen, Shaw and Courtney, 2016); and at a university in the United Arab Emirates with mainly Arab students and English as language of instruction (Johnston, Partridge & Hughes, 2014).

LIISP: Collective case study

Responding to research gaps identified above, the LIISP study aimed to compare first year international students' library and information use across four universities using qualitative case study methodology (Simons, 2009). To enable comparison of international and domestic students' experience, we adopted the data collection process of the Project Information Literacy (PIL) study *Learning the ropes: How freshmen conduct course research once they enter college* (Head, 2013). Although the PIL study included only domestic US students (Alison Head, personal communication, 15 December, 2017), LIISP's appropriation of the methodology recognizes that international students constitute a significant proportion of the first year populations of many US and Australian universities, as indicated previously.

The PIL study provided a unifying thread and common reference for the LIISP study. With PIL's permission, LIISP researchers adapted the wording of the PIL survey and interview questions to focus on international students, and to suit particular research foci and library circumstances at our respective universities. We also added questions about library spaces, as this represented a common interest among our team. These customizations ensured local relevance of the international project findings.

The cases: Four university libraries

This collective case study focuses on the libraries of Queensland University of Technology (QUT) in Australia, and Purdue University, University of Colorado Denver (UCD) and University New Mexico (UNM) in the United States. These libraries serve differing student population sizes and proportions of international students, as shown in Table 1.

Table 1: Comparison of key characteristics of the four university libraries (in 2015)

	QUT (2015)	**Purdue University** Main West Lafayette campus (2015)	**University of Colorado Denver** (2015)	**University of New Mexico** (2015)
Total students	48, 503	39,409	14,000	27,353
International students	8,218	9,230	980	1,071
Percentage of student population	17%	23%	7%	3.9%
Home countries	Over 100	125	Over 100	-
Languages	-	-	-	97 (Fall 2014)
Library collection				
Print books	448,056	1,788,112	-	3,380,733 (title)
Ebooks	661,392	1,932,612	-	753,464
Ejournals	99,992	111,269	-	72,779 (e-serials)
Journal databases	352	581	-	431
Library spaces				
Branches	4	13	1	4
Seats	2,346	-	1,100	1,977

Public workstations	801	334	150	571
Help & Learning IL instruction attendance Student enquiries & consultations (f2f/online)	 39,758 137,014	 29,618 893	 - -	 9925 (495 sessions) 13,308
References	QUT, n.d.; QUT Library, n.d.	Purdue University Libraries, 2015; Purdue University, 2016	Somerville, personal communication, 2018	University of New Mexico, 2015.

Queensland University of Technology is a teaching and research university located in Brisbane, Australia with over 47,000 students enrolled in a wide range of on-campus and online courses. In 2014, at the time of research, 7982 international students from over 100 countries made up approximately 17% of the QUT student population (QUT, n.d.). QUT emphasizes real world education which includes "authentic learning, international and cross-cultural experiences, and the engagement of practitioners in teaching" (QUT, 2016, p. 4). QUT supports students' transition to university through First Year Experience (FYE) programs which provide a foundation for ongoing learning and professional growth (QUT, 2012). QUT Library aims to support information literacy and academic skills development through formal and informal and personalised learning via helpdesks, online chat, orientations and workshops (QUT Library, n.d.).

Purdue University, located in West Lafayette, Indiana had an enrolment of 40,451 students in Fall 2016. Of these, 9306 (23%) were international students – 17.1% of the undergraduate body and 40.1% of graduate and professional students (Purdue University, 2016). Purdue University offers various orientation programs for incoming students including a Summer Transition program and separate Boiler Gold Rush programs for domestic and international students. Purdue University Libraries (2016) aim to be a "national and international model for the 21st century academic research library". They provide open access resources, informed learning, dynamic learning spaces, and support research.

University of Colorado Denver offers 140 programs at undergraduate, graduate, and doctoral levels. In 2015, 7% of approximately 14,000 enrolled students were international students. Auraria Library provides academic resources and research experiences to students, staff, and faculty of University of Colorado Denver (CU Denver), as well as Metropolitan State University of Denver, and Community College of Denver. The Library maintains an extensive collection of academic resources, study spaces, learning and teaching technologies, and research services. Instruction librarians provide information literacy programs, including new student orientation. When the study was conducted in 2015, Auraria Library was undergoing extensive renovation to create more collaborative learning spaces and ubiquitous technology (Somerville & Brown-Sica, 2011). Furthering cross-cultural competence, Auraria Library sponsored a five-year international staff exchange program (Somerville, Cooper, Torhell & Hashert, 2015) and hosted a Fulbright Scholar-in-Residence for four months in 2010 (Hilary Hughes).

University of New Mexico is a public teaching and research university in Albuquerque, with over 27,000 students enrolled in a wide range of programs. In 2015, the 1071 enrolled international students accounted for 3.9% of the total student population and 15% of graduate students (UNM, 2015). UNM offers various courses for undergraduate first year

students which include First Year Learning Communities and Transition Communities. One librarian liaises with these programs and subject librarians reach out to students as needed. The Graduate Resource Center offers a number of workshops on the academic research process, many of which are taught by librarians. UNM Libraries also offer multiple instruction and support programs for diverse students.

Research approach

Qualitative case study method involves in-depth study of a contemporary social phenomenon (Simons, 2009). Findings are intended to provide real-life insights and evaluative data to inform problem solving and strategic planning. This approach afforded LIISP the flexibility to gain detailed findings related to four universities as well as wider understanding of the *phenomenon* of first year international students' experience of using the library and information when transitioning to life and study at a host university. Thus, QUT, UCD, UNM and Purdue University represented four separate cases whose findings and recommendations were later combined in this collective case study.

Data collection sought the first-hand perspectives of recently arrived international students at QUT, UCD, UNM and Purdue and involved an online survey and/or semi-structured interviews. Both methods are frequently used in qualitative research, including studies about internationalization in academic libraries (Click et al., 2017). Triangulation of data gathered by these two methods contributed to the studies' rigor. The data for each university were analyzed separately based on a framework developed by the LIISP researchers, following a qualitative process of thematic coding and categorization (Patton, 2015).

The survey and interview questions generally followed those of the PIL study (Head, 2013), with some additions about library spaces. The survey sought information about *what* library resources, services and spaces international students use, while the interview questions asked *how* they use and feel about them. Across the four cases, a few questions were deleted or added according to the conditions of the particular universities. Instead of *freshmen* (Head, 2013) we used the gender inclusive term *first year students*.

The study was conducted first at QUT in 2014 where Hughes used a modified questionnaire and interview questions with undergraduate students. (To view the protocols see https://eprints.qut.edu.au/105372). Here, the study coincided with a complementary project titled *Flipped library orientation for international students* (Hughes et al., 2016). Next at UCD in 2015, Somerville and Chaudhary used an abbreviated version of the interview protocol with international undergraduate students. They omitted questions about library spaces as these were irrelevant at the time when the entire library was undergoing renovation. At UNM in 2015, Cooper adopted Hughes's version of the survey and interview questions primarily with graduate students as there are fewer international undergraduates at UNM. At Purdue in 2016, Flierl followed the QUT pattern with minor modifications to suit local terminology. Each researcher adhered to their own university's research ethics conditions. They provided written and verbal information to all participants about the study, assuring that all responses would be treated confidentially and reported anonymously. Participants were required to formally indicate their consent.

The findings were presented as four separate case studies: QUT (Hughes, Hall & Pozzi, 2017); UNM (Cooper & Hughes, 2017); Purdue (Flierl, et al., 2018); and UCD (Somerville & Chaudhary, internal report; presentation to QUT Children and Youth Research Centre, Brisbane, 2015). The individual case study findings were later collated and compared with each other and the PIL study.

Limitations

This research evolved opportunistically in accordance with the researchers' interest and availability. While the separate case studies were conducted rigorously, their findings are limited by relatively small participant groups at only four universities. There were some variations in the data collection protocols used at each university. While the QUT survey and interview set (adapted from PIL) provided the guide for the other case studies, some questions were adapted or deleted as appropriate to local the conditions. As the studies were conducted separately with QUT, Purdue and UNM conducting surveys and then using purposeful convenience sampling to conduct interviews (Patton, 2015), the size and make-up of the participant groups varied in size and mix of undergraduate and graduate students. At UCD it was only possible to conduct interviews. These variations limited fine grained cross-case analysis. However, as an exploratory collective case study, the findings are not intended to be generalizable. Rather, they provide first-hand insights from international student perspectives that are indicative of wider transitioning experience and needs in culturally diverse higher education.

Participants

A total of 320 international students contributed to this collective case study, as summarized in Table 2 below. All were in their first year of a degree program at their host university. 81% were undergraduate and 19% were graduate students. The interview participants were self-selected sub-sets of the survey respondents. Their ages ranged between 18 and 45 years although most were under 25. The great majority spoke English as an additional language.

Table 2 Summary of participants at QUT, Purdue, UNM and UCD

	Participant numbers	**Home countries**	**Courses studied**
QUT	Survey: 110 undergraduates	Mainly Asian countries	Wide range of disciplines
	Interview: 7 undergraduates	China, East Timor, India, Malaysia, Philippines, Russia, Singapore	Architecture, business, creative industries, law, earth science, nursing
UCD	Interview: 4 undergraduates	Bangladesh, China, Libya, Nepal	[not reported]
UNM	Survey: 61 graduates, 10 undergraduates	Mainly South Asian countries and China	Engineering, computer science, business
	Interview: 5 graduates	India, Iran, Ecuador	Computer science, engineering, fine arts
Purdue	Survey: 135 undergraduates	Predominantly from China and India	Mainly science, engineering
	Interview: 3 undergraduates	China, Russia, South Korea	Engineering

LIISP-PIL comparative findings

This section compares findings of the four LIISP case studies and those of the PIL study of US domestic students (Head, 2013). For LIISP, the tabulated data relate to survey responses at QUT, UNM and Purdue, and interview responses from all four universities including UCD. Percentages, where shown, allow descriptive comparison. They correspond with participant data for the individual cases rather than combined data across all four cases.

Overall, the findings suggest that international and US domestic students alike experience varied and sometimes conflicting emotions in their transition to university. For example, the PIL study notes that US domestic students found completing college assignments both "exciting" and "overwhelming" (Head, 2013, p. 2) while a QUT participant described using their host library as "exciting and stressful". The library may be "beautiful" but also "intimidating" (UCD student). While many international students appreciated that Internet access was free at their host university, the multitude of resources available was both beneficial and confusing.

Differing social conditions sometimes affected international students' expectations or response to the library. For example, one UCD student wanted hot water in the library for tea and noodles, as was the custom in his country. Students new to the US were also concerned about gun culture (UNM) and personal safety (UCD). Unfamiliar academic practices were a particular challenge for both international and domestic students, while language-related issues recurred frequently in international students' responses.

The responses of international undergraduates and graduates were generally similar, with a few notable points of difference. A considerably higher proportion of UNM graduates found using information easy compared with undergraduates at other universities, and they used Google and Wikipedia less. They were the only group to mention online databases in their top five difficulties, which may suggest that compared with undergraduates they are extending their information use beyond Google. Paradoxically, they also reported using ebooks and journals less than undergraduates.

Impressions of the LIISP libraries

The QUT international students were generally impressed with QUT Library spaces, resources, services and help. Many were surprised by the size of the Library and extent of services and resources. However, over-crowding and noise was a frequently mentioned concern. They tended to make extensive use of the physical Library as a study and social venue. Their spatial needs varied according to purpose (study, social) and personal preferences. They tended to prefer peaceful, quiet (but not silent) individual spaces where they were visually connected to other people. Compared with libraries in the international students' home countries, QUT Library provided a greater range of information resources, especially online sources and publications. They particularly valued free access to the Internet and tended to make heavy use of computers in the Library.

At Purdue, physical library spaces were important to first-year international students who reported that: not finding a space to study was a primary concern; access to resources like desktop computers was beneficial; and having the library open 24/7 was useful. Purdue University Libraries' open stacks, service-oriented staff, and space dedicated to individual

and group study seemed different from most students' previous library experiences. Some indicated that learning about or finding the different libraries on Purdue's vast campus was difficult.

The UNM participants generally viewed the Libraries' spaces as a refuge. They appreciated the wide variety of comfortable flexible spaces and furniture, the availability of specialized technology and tools, and the Libraries' central locations. The Libraries were important to them as they often did not have the resources needed to accomplish their coursework at home. Reportedly, with a limited support system in their new country, they relied on the library as a meeting and working space that supplied the tools, spaces and services they needed. Compared to undergraduate libraries in their home countries, the students found the UNM libraries have: more resources that are online and more accessible; fewer textbooks, which they lamented; more technology; services that were new to them such as interlibrary loan, online group study room booking and free Wi-Fi; and a greater variety of study spaces. The graduate students noted greater need to use the library due to higher level research and they appreciated the abundance of resources at their fingertips. However, several students expressed concerns about personal security, noting that unlike in their home country, here they were afraid to study at the library and walk home at night because of US gun culture.

While UCD students were generally pleased with the Auraria Library environment, some found it too busy and noisy to concentrate and two expressed concerns about personal safety and perceived inadequate security. Other differences between Auraria Library and libraries in their home countries included: larger size and more varied facilities; far greater amount of resources beyond textbooks; self-access to resources (rather than closed stacks); approachable library staff and access to free Wi-Fi. However, many appeared to have limited familiarity with what the Auraria Library offers. For example, many reported easy access to computers but were unaware that they could borrow iPads. Similarly, while they referred to the Library's print books, they often did not know about the large e-book collection. They tended to assume that a library's purpose was to provide study resources and that the library staff's role was to administer services rather than help students to learn how to use information. In addition, some seemed to consider that receiving help in using information may be unethical.

Resources used for assignments

Figure 1 below summarizes the top three types of library-provided resources used by the participant students at UNM, Purdue and QUT. It indicates a consistent tendency towards digital resources, especially online journals and e-books, although print books were the third most used resources at QUT and Purdue.

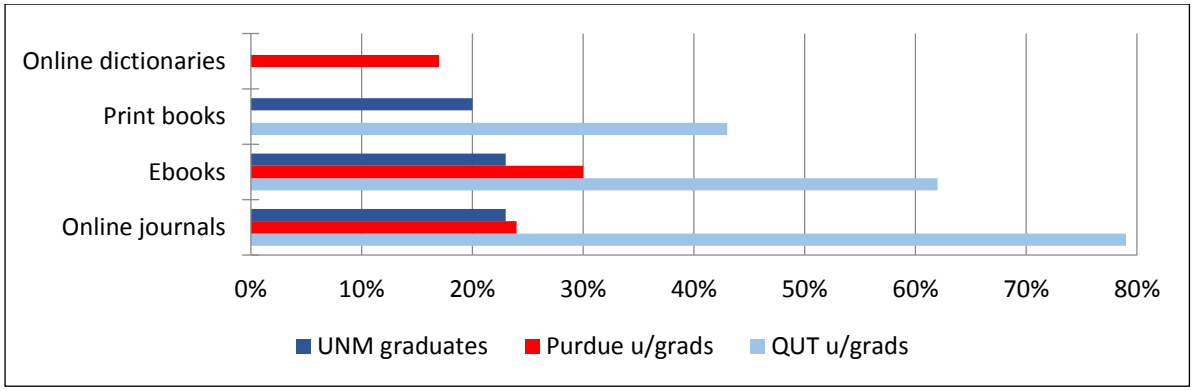
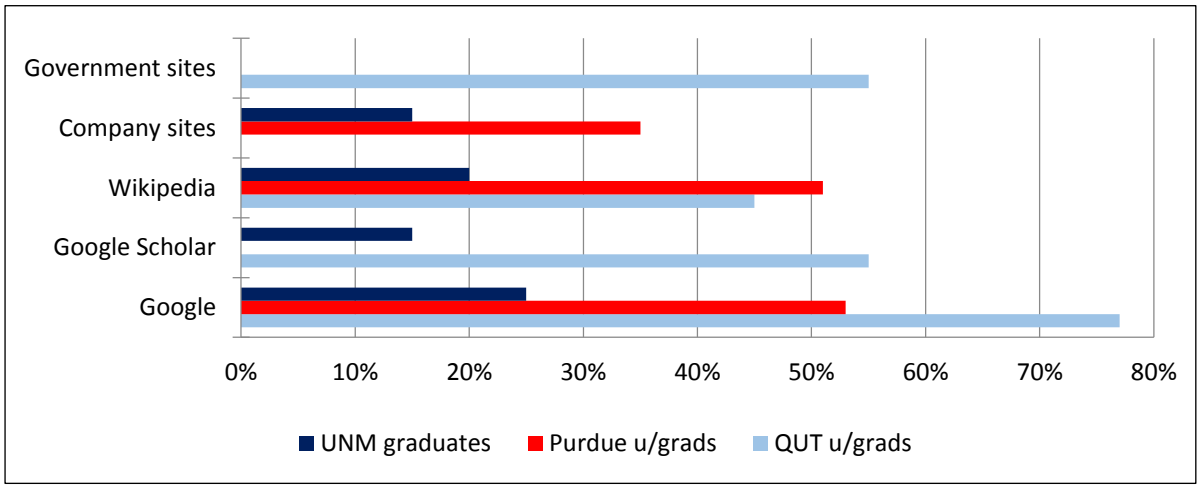


Figure 1: Top three types of library-provided resource used by international students at QUT, Purdue and UNM [LIISP survey responses]

Figure 2 below indicates the free Internet resources that the international students used. Overall, Google and Wikipedia were the most commonly used resources. Although Wikipedia was not among QUT students' Top 3, a significant minority (45%) of them used it.

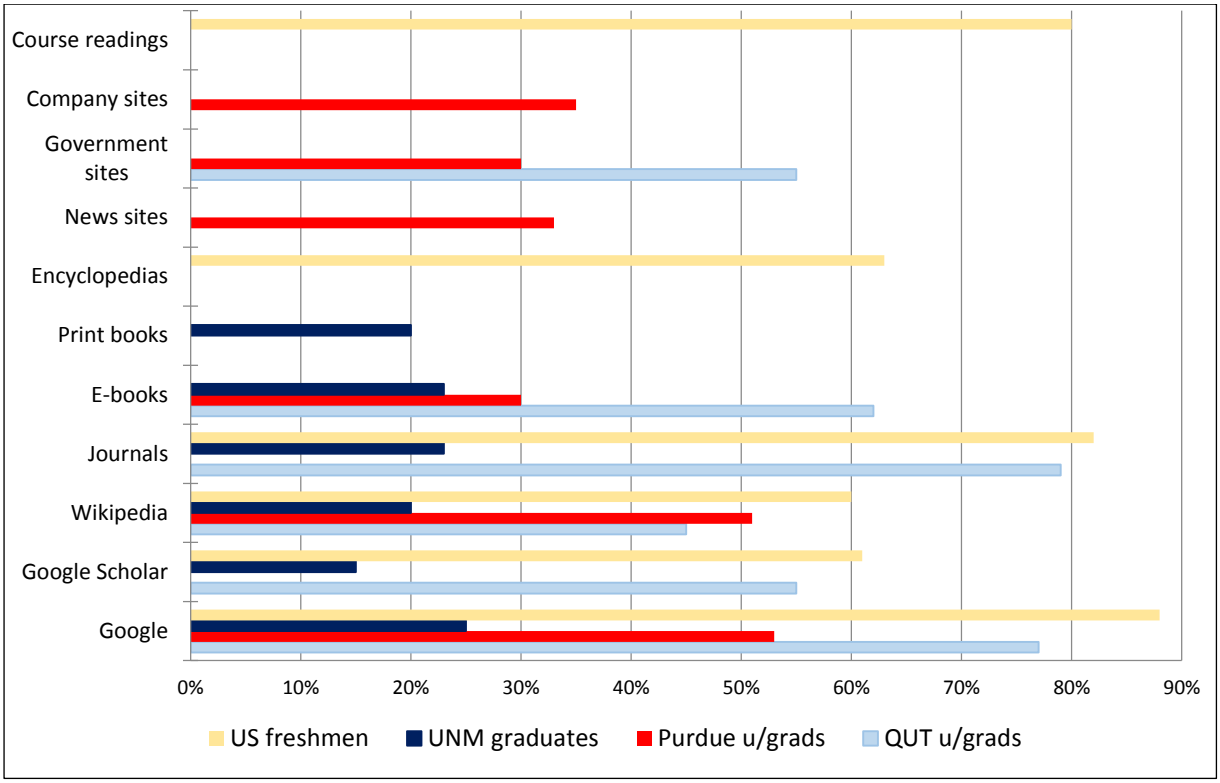


Top 3	QUT undergraduates	Purdue undergrads	UNM graduates
1	Google (77%)	Google (53%)	Google (25%)
2	= Google Scholar = Government sites (55%)	Wikipedia (51%)	Wikipedia (20%)
3	-	Company sites (35%)	= Google Scholar = Company sites (15%)

Figure 2: Top 3 free Internet resources used by international students at QUT, Purdue and UNM [LIISP survey responses]

The following Figure 3, which combines library-provided and free Internet resources, compares the resources most used by the international students at QUT, UNM and Purdue and the PIL study's US domestic students. Overall, the domestic students were the highest users of both library-provided and free Internet resources. While UNM graduates and domestic students used an equal number of library-provided and free Internet resources, QUT and Purdue undergraduates used mainly free Internet resources. Google was the only resource that featured among the Top 5 of all four groups. While Wikipedia was among the Top 5 of the Purdue and UNM international students, it ranked sixth with QUT participants

(45%) and PIL freshmen (60%). The international students made relatively high use of books: e-books were among the six most used resources for all three international groups, and print books were the fifth most used at UNM. In contrast, neither book format was among the domestic students' six most used resources.



Top 5	QUT undergraduates	Purdue undergrads	UNM graduates	US freshmen
1	Journals (79%)	Google (53%)	Google (25%)	Google (88%)
2	Google (77%)	Wikipedia (51%)	Google Scholar (15%)	Journals (82%)
3	E-books (62%)	Company sites (35%)	= Journals = E-books (23%)	Course readings (80%)
4	= Google Scholar = Government sites (55%)	News sites (33%)	-	Encyclopedias (63%)
5	-	= E-books = Government sites (30%)	=Wikipedia = Print books (20%)	Google Scholar (61%)

Figure 3: Top 5 resources used by international students at QUT, Purdue, UNM and US domestic students [LIISP and PIL survey responses]

Challenges

Many of the international student interviewees reported challenges associated with the unfamiliarity of the academic environment at their host university. At all case study sites they commented on difficulties associated with engaging in different study approaches such as critical thinking, rather than memorization and rote reproduction of information. For example, a UNM student noted that navigating a new "culture of study" was stressful as they had never written and read academic papers nor encountered academic conventions like copyright and citation. Some Purdue students reported difficulty in determining

instructor expectations on assignments and citation, with the acknowledged difficulty of Purdue's STEM programs apparently intensifying the challenge of US academic practices.

Similar to many US domestic students (Head, 2013), the international students often found the size of the library daunting, especially those who had not previously used a library and online resources for study. The impacts of this unfamiliarity appeared greater for students who were communicating and studying in English as an additional language. Thus, a Purdue participant commented that although instructors were often friendly and helpful, they were difficult to understand when they spoke too quickly.

Despite these challenges, as shown in Figure 4 below, a relatively small proportion of the international students surveyed found it 'hard' or 'very hard' to use information for assignments: 26% at QUT, 10% at Purdue and none at UNM. However, it is important to recognize differing individual experiences. For example, although the great majority of UNM survey respondents indicated that they found using information 'easy', 'very easy' or 'super easy', some UNM interviewees expressed frustration at the complexity and difficulty of using library search tools.

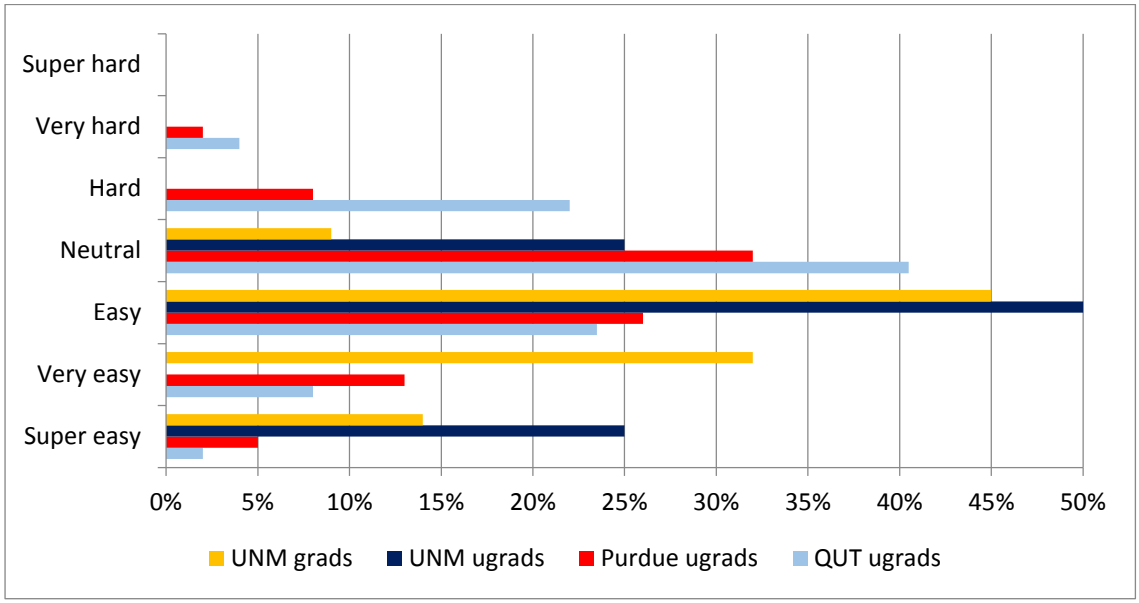
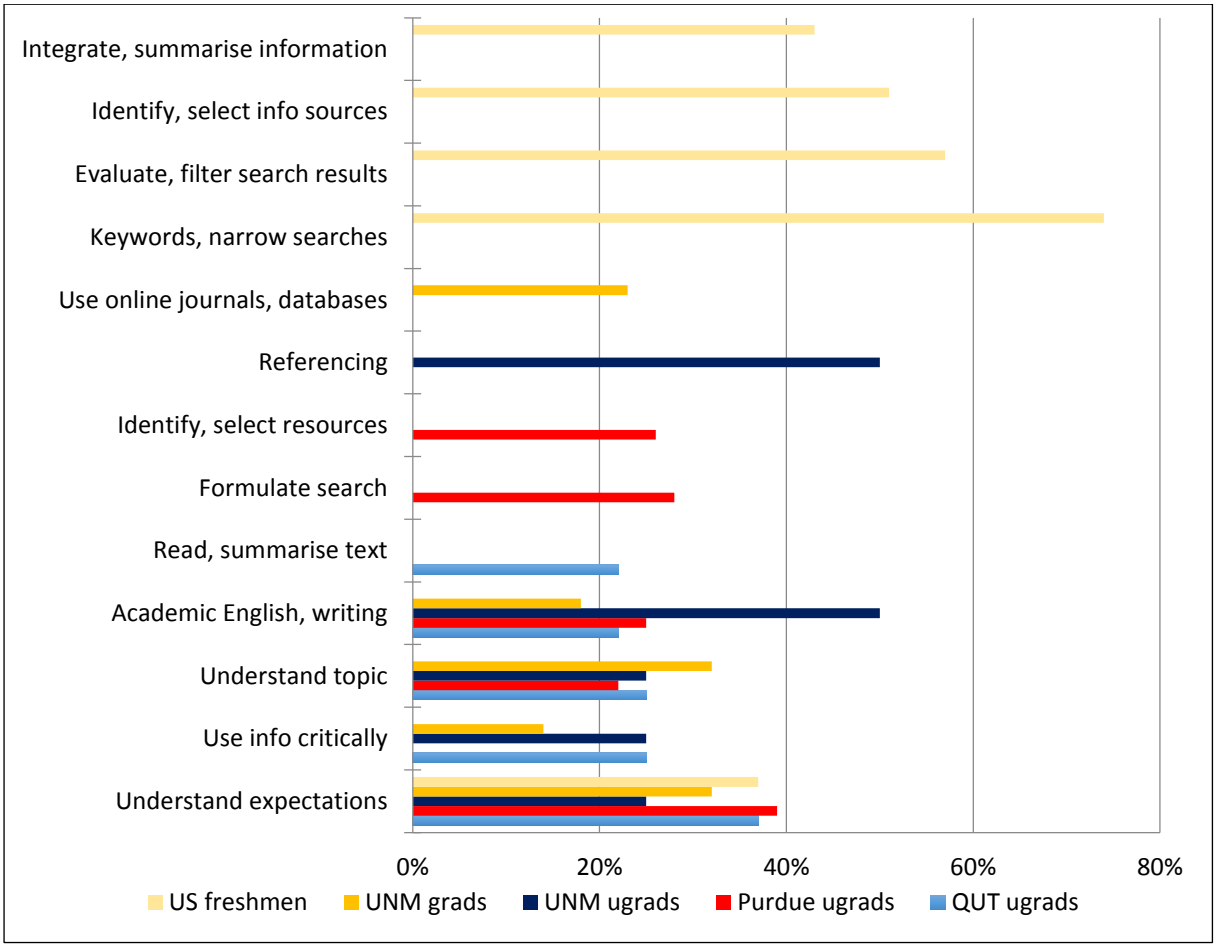


Figure 4: Ease-difficulty in using information for assignments of international students at QUT, Purdue and UNM [LIISP survey responses]

Figure 5 below compares the five things that international students at QUT, Purdue and UNM and US domestic students found most challenging when working on assignments. Overall, the international students' main difficulties were associated more with discipline-related and broader academic issues than with basic information searching. Thus, approximately one third of international students across all three sites reported difficulty with understanding the topic and educators' expectations, and with academic writing. In contrast, they less frequently mentioned basic information skills such as formulating searches (Purdue 28%) and selecting information sources (Purdue 26%). A quarter of students at UNM and QUT experienced difficulty with higher level *critical* information use. This tendency for international students to focus on broader academic aspects could be

associated with the cultural and linguistic complexities of studying in an unfamiliar educational environment.

In general, the US domestic students experienced similar difficulties although they tended to focus more on basic information skills than international students did. The PIL study (Head, 2013, p. 3) states that a majority of domestic students "faced challenges in both locating and then searching through research information systems and services on their new campus". Most "found it difficult to figure out the critical inquiry process while developing competencies, practices, and workarounds for evaluating, integrating, and applying the sources they found". Similar to international students, 37% of US domestic students experienced difficulty in understanding topics. However, their most commonly reported difficulties related to basic skills such as determining keywords (74%), evaluating and filtering search results (57%) and selecting information sources (51%).



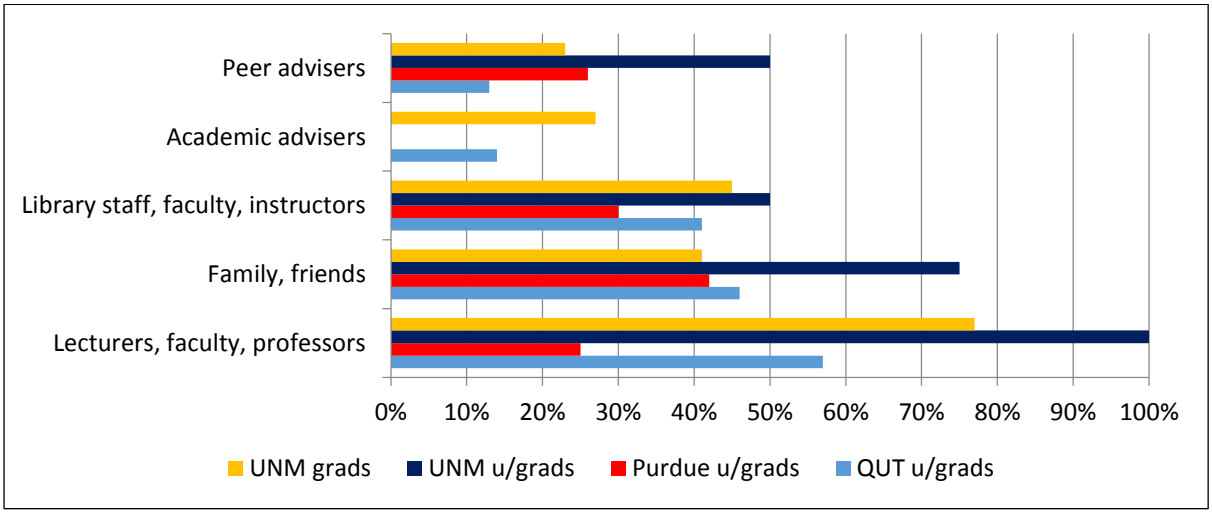
Top 5	QUT undergrads	Purdue ugrads	UNM undergrads	UNM graduates	US freshmen
1	Understand expectations (37%)	Understand expectations (39%)	= Academic English, writing = Referencing (50%)	Understand expectations (32%)	Keywords, narrow searches (74%)
2	Use info critically (25%)	Formulate search (28%)	-	Understand topic (32%)	Evaluate, filter search results (57%)
3	Understand topic (25%)	Identify, select resources	= Use info critically	Use journal databases	Identify, select info sources

		(26%)	= Understand topic = Understand expectations (25%)	(23%)	(51%)
4	Academic English, writing (22%)	Academic English, writing (25%)	-	Academic English, writing (18%)	Integrate, summarize info (43%)
5	Read, summarize text (22%)	Understand topic (22%)	-	Use info critically (14%)	Understand expectations (37%)

Figure 5 Top five assignment-related challenges for QUT, Purdue and UNM international students and US domestic students [LIISP and PIL survey responses]

Help seeking

When seeking help in using information, international students at QUT, Purdue and UNM most commonly consulted teaching staff (faculty members) and family or friends, while Library staff ranked second or third (see Figure 6 below). As one UNM student explained, teachers are accessible, knowledgeable and trusted and sometimes act as "very good librarians" in showing how to use the library. A smaller proportion of international students at all four universities also sought help from peer advisers. In contrast, the PIL study discovered considerably lower rates of help-seeking among US domestic students who consulted librarians and English composition instructors equally (29%). Their additional sources of help were other professors (20%) and upperclassmen (9%).



Top 5	QUT undergraduates	Purdue undergrads	UNM undergraduates	UNM graduates
1	Lecturers, faculty, professors (57%)	Family, friends (42%)	Lecturers, faculty, professors (100%)	Lecturers, faculty, professors (77%)
2	Family, friends (46%)	Library staff, faculty, instructors (30%)	Family, friends (75%)	Library staff, faculty, instructors (45%)
3	Library staff, faculty, instructors (41%)	Peer advisers (26%)	= Library staff, faculty, instructors = Peer advisers (50%)	Family, friends (41%)
4	Academic advisers (14%)	Lecturers, faculty, professors (25%)	-	Academic advisers (27%)
5	Peer advisers (13%)	-	-	Peer advisers (23%)

Figure 6: Most common sources of help among international students at QUT, Purdue and UNM [LIISP survey responses]

When international students sought help from library staff, they most often went to the Library Help Desk or IT Help Desk, as shown in Figure 7 below. A smaller number used the library website or online chat or email. Occasionally they gained information-related assistance during a library class or orientation.

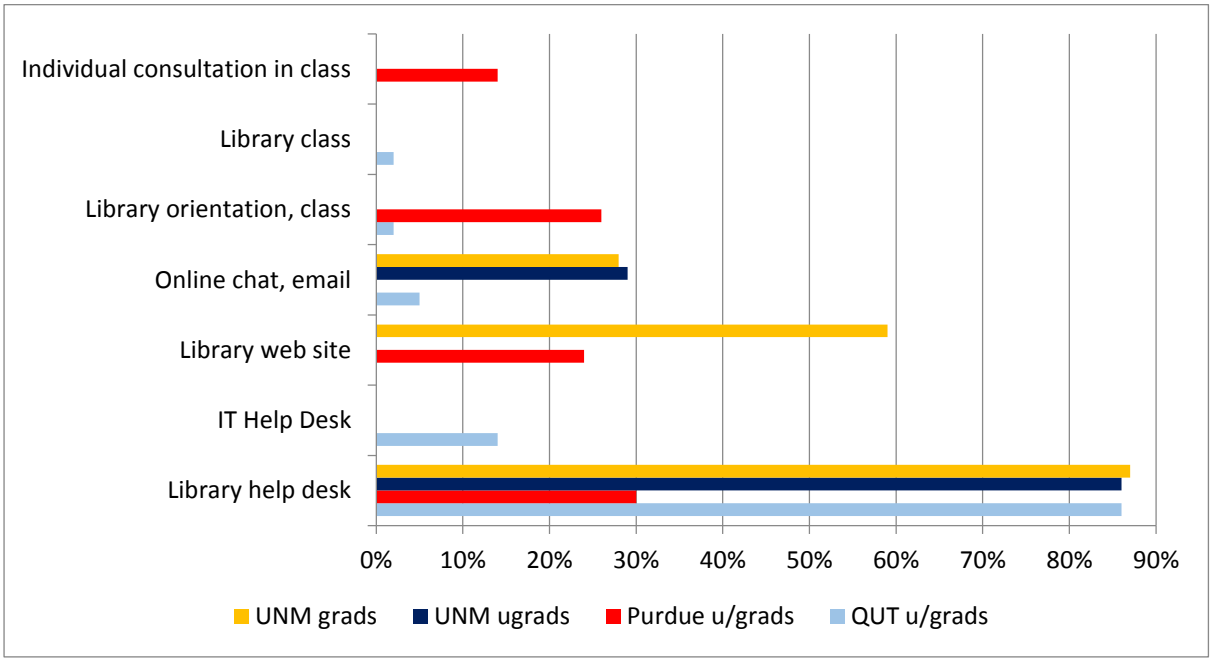


Figure 7: Where international students seek help at QUT, Purdue and UNM Library [LIISP survey responses]

International students gave various reasons for limited help-seeking at the Library. At QUT, Purdue and UCD they were often unaware of the role of academic librarians in the US and Australia and of their availability to assist students in using the library and finding information. A student at UCD explained that their home country librarians only fetched books and did not offer study-related consultation and instruction. Some UNM graduates were reluctant to seek help, fearing that their questions might be about things they were expected to know already. Others were concerned that they might not be able to express what they needed to ask as English was their second language. A fairly small proportion of students stated that they did not know where to go for help (Purdue 8%, UNM 26%) or who to ask (Purdue 11%) or even what help was available (Purdue 11%). Some just stated that they did not want to ask (Purdue 8%; UNM 58%). In some cases students reported being able to resolve their own problems independently (Purdue 51%) compared with only 3% of US domestic students.

Information literacy learning

QUT, Purdue UCD and UNM Libraries all provide a range of information literacy learning programs. However, the survey results indicated a quite low participation rate among international students (Figure 8). Some undergraduates indicated that they were unaware of educational programs provided by the Library. At QUT and Purdue, low participation in

classes may also be associated with students' preference to develop information capabilities independently using self-instruction materials provided by the Library.

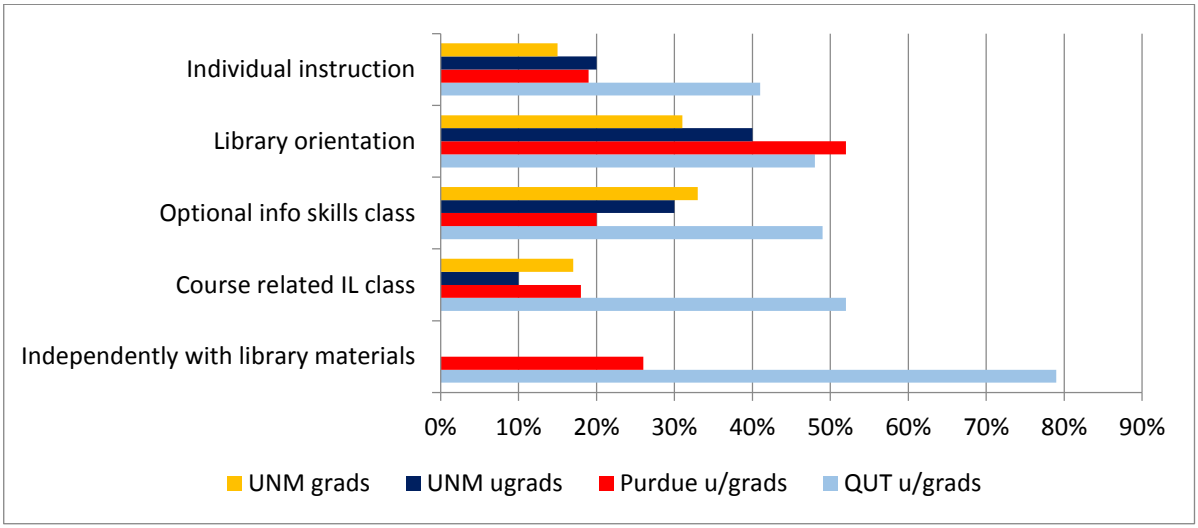


Figure 8: Participation in information literacy programs at QUT, Purdue and UNM [LIISP survey responses]

International students' recommendations

The following Table 3 summarizes LIISP participants' recommendations for improving international students' experience of the library and information use. Recurring themes include the need for more resources, especially textbooks, and more quiet areas for individual study and resting. They highlighted the need for more in-person assistance and basic written information to help with using library resources and technologies. They also recommended more extensive and flexibly scheduled orientations and information literacy classes customized for international students.

The most frequent suggestions for improvement related to library information and way finding. International students evidently need clear layout and signage to ensure that can use the library confidently and independently. Active promotion of the library to international students would seem essential given that the services, resources and spaces are unfamiliar to many of them.

Table 3: Recommendations for improvement at QUT, Purdue, UNM and UCD [LIISP survey and interview responses]

	QUT	Purdue	UCD	UNM
WAY FINDING	library information, signs & web site in *different languages*	clearer information about library locations	improve library signage and way finding	easier arrangement; better signage
SPACES	More quiet spaces for study and rest	more space to study		more individual and group spaces; longer hours
RESOURCES	[no recommendations offered]	Resources in *multiple languages*	More textbooks & course materials; *other languages;* online *translation*	more textbooks; better Wi-Fi
HELP	*multilingual*	[no	Individual help &	more help desks;

	librarians	recommendations offered]	multilingual instructions for using lib resources and technology	instructions for use of equipment
LEARNING OPPORTUNITIES	workshops and orientations for international students; flexible timing in semester, holidays, week-ends	library involvement in online orientations	orientations and workshops for internat. students on library services, resources & US library purpose	Overview for all new students; hand-outs on basic tools
LIBRARY AWARENESS	[no recommendations offered]	more marketing and outreach on resources & services	Inviting *multi-lingual* messages on library website and at entrance	raise awareness of library services, resources and tools
INTERNATIONALIZING THE LIBRARY	study/mentoring for/ by internat. students; vacation activities in library	[no recommendations offered]	[no recommendations offered]	building a community of/with international students

Discussion

Insights and implications

The LIISP findings contribute to, and generally agree with, the relatively small body of research that compares international students' library and information use at host universities. For example, the LIISP findings are similar to those of the study at three Californian university libraries in noting that "International students visit the library frequently but do not take advantage of the full range of services" (Knight et al., 2010, p. 591). Like LIISP, the California study's participants also interacted infrequently with librarians, preferring to seek help from friends and teachers. They also wished for non-English language materials and extended library hours. Again similar to LIISP, this study concludes: "Lack of knowledge about the library, [and] perceptions of need … are obstacles to library use, rather than the anticipated response of cultural barriers" (p. 591). Moreover, comparison of LIISP and PIL findings reveals considerable common ground between incoming domestic and international students, which is often overlooked in library research and practice.

Four key insights emerge from the LIISP collective case study:

- International students are characterised by their diversity and individuality
- In many respects first year international students' library and information use and associated challenges are similar to those of US domestic students transitioning from high school to university.
- The challenges international students experience generally relate to the unfamiliarity of the social-cultural environment and academic and library practices at their host university, rather than generalised educational deficit
- The library is vital to supporting international students' transition to a host university

These insights mitigate against the "myth" that categorizes international students as if "they are all from the same country, share the same cultural and linguistic background, and face

more or less the same challenges in using a [US] library" (Ye, 2009, p. 8). They support the view that treating international students as a homogenous group is "a disservice to them" (Schulte & Choudaha, 2014, p. 57). Thus, the evidence of similarities in transition experiences calls for inclusive approaches to supporting transition that inclusively draw together incoming domestic and international students (Houlihan et al., 2017; Perry, 2016).

Inclusive approaches, in contrast to deficit-based programs, aim to enrich the learning opportunity of all students and educators within a culturally diverse university population. They encourage transitioning students to draw on shared experience as well as personal strengths and knowledge. Thus:

> While it is important for teachers to assist students to find their way around the learning environment—understand what is expected of them and what they need to do to be successful—it is also important to recognize the immense range of experience and knowledge students bring, and the value of this as a learning resource for themselves, for other students, and indeed, for you [teachers]. (Leask, 2015, p. 92)

Inclusive libraries respect the multifaceted individuality of every student and the cultural diversity that they collectively create. These libraries recognize that irrespective of background, domestic or international, all new students have one point of commonality – embarking on life and study at a particular university. But their transitioning experience at this university will be nuanced by personal, social and cultural attributes that may be coloured but not be exclusively defined by 'home' country conditions. Therefore, differentiating library assistance to students based on language or culture would seem counterproductive compared with collaborative initiatives that recognize transitioning students' whole experience.

For academic libraries, student diversity offers strategic opportunities for internationalizing information services and information literacy programs (Aaronberg, 2017) in line with university goals for internationalization. As social and cultural hubs, libraries can accentuate differing worldviews through events, spaces and resources that foster cultural appreciation rather than discrimination. Moreover, library policy that emphasizes socio-cultural inclusion enables cost effective services with wide student reach. By attending to clear communication and intuitive navigation, libraries ensure their services are accessible to all students. For example, providing multilingual library guides and staff may not be sustainable or equitable when university libraries serve speakers of more than 100 languages. Accommodating the most numerous language groups disregards students from less represented backgrounds. On a practical level, providing services and resources in multiple languages, poses various challenges including criteria for which languages to represent, and ongoing availability of reliable translators. From an educational perspective, using resources and services in the university's language of instruction indirectly contributes to all students' linguistic proficiency across differing contexts. For example, a learning activity about academic information conventions and jargon that integrates online dictionaries and translation tools could simultaneously develop students' information literacy and academic English capacities.

Library support for transition

The LIISP participants' recommendations signal foci for improved transition support at the respective host universities. More widely, the study's findings highlight opportunities for

academic libraries to adopt a nimble, outward looking university-wide orientation that anticipates students' changing needs (Somerville, 2009) through provision of intentionally inclusive services and spaces. Librarians with expertise as educators and ability to collaborate with faculty are vital as research shows that information literacy learning embedded in the first year curriculum enables students to critically and responsibly manage the information-related challenges of university study (Briggs, Clark & Hall, 2012 Kim & Shumaker, 2015). Moreover, the increasing emphasis on blended and online learning, calls for the specialist guidance in digital literacy that many librarians offer (Schneider, Zammit & Roper-Armstrong, 2017).

Informed by the LIISP findings, the following guidelines suggest inclusive strategies for libraries to support first year student transition:

- Adopt *diversity responsiveness* as a tenet of library policy and practice that appreciates and responds inclusively to the complex interweaving of cultural, social, educational and professional experiences, and personal attributes such as gender, age and health;
- Involve students in co-design of culturally inclusive library spaces and activities;
- Embed culturally diverse perspectives routinely in educational materials and learning activities, to align disciplinary knowledge with academic and information literacies and enhance understanding of differing academic conventions of the host country and elsewhere;
- Intentionally use clear, jargon-free language on library guides and web site, with images and diagrams to illustrate text – test comprehensibility with undergraduate students from varied language backgrounds;
- Provide a variety of information materials and learning opportunities to suit differing first year student demographics and preferences;
- Promote online library orientation and information literacy tutorials to all incoming students, including international students, before commencing - disseminate library information and tutorial links via multiple outlets including the university's language and learning support services and international student office;
- Enhance students' independence and confidence as information using learners through clear definition of the library's physical and virtual spaces and intuitive visual way-finding clues; and
- Include profiles of 'first year student allies' on the library web site to help students identify culturally aware librarians and transition support staff.

These suggested strategies depend upon library staff collaborating with academic and professional colleagues across the university, to ensure inclusive support for first year students that is "inspired by principles of effective pedagogy and professional excellence" (Hellstén, 2007 p. 88). In the final section we propose that transition pedagogy provides a context for such collaboration while informed learning represents the expertise that librarians can contribute.

Transition pedagogy and informed learning

There is an apparent synergy between informed learning and transition pedagogy, which suggests the potential of combining them in first year support initiatives. Transition pedagogy constitutes an overall framework for enacting an intentional first year curriculum for holistic learning (Kift, 2015; Kim & Shumaker, 2015; Schneider, Zammit & Roper-

Armstrong, 2017). Meanwhile, informed learning promotes a holistic approach to using information to learn. Applied within transition pedagogy, informed learning practices could enable students to learn about particular curriculum-related topics, by simultaneously developing the critical and creative information using practices needed to gain new knowledge (Bruce & Hughes, 2010). In combination, transition pedagogy and informed learning would foster inclusive learning that draws upon variation in student backgrounds and experience as a resource (Kettle, 2017).

Transition pedagogy imbued with informed learning practices offers first year students an authentic process for using information to learn about life and study at the host university. Ideally support for this process commences prior to students' arrival and continues through and beyond their first year, fostering both formal learning and social well-being. Thus, students can widen their horizons through sharing and expanding upon their previous learning and information using experiences in differing cultural and educational contexts (Hughes & Bruce, 2013).

Moreover, librarians can extend their capacity through collaborative partnerships with academic and other staff. Opportunities for innovative practice will arise through a "move away from disparate, one-off initiatives and isolated examples of good practice" that are "unsustainable and usually not scalable" (Kift, 2015, p. 59). Such innovation could involve a shift from library-centric information skills programs to supporting critical information use in curriculum-focused learning (Bruce & Hughes, 2010). Thus, librarians could contribute to teaching for diversity and personal transformation (Kettle, 2017). By opening up informed learning pathways, librarians-as-educators enable international students to embrace the "conditions of possibility" they encounter at a host university, by turning "adversity into advantage" and becoming "agents of their own change" (Kettle, 2017, p. 26).

Conclusion

This collective case study has contributed evidence-based understandings of first year international students' library and information use. In spanning institutional and international borders, it has enabled the researchers to develop collaborative research capacity. However, opportunities remain for further comparative research across a wider range of institutions and host countries about international and domestic students' library and information use, and transitioning needs. The findings underpin proposed inclusive transition support approaches that integrate informed learning practices in transition pedagogy. This process also requires further investigation. Of potential interest to university administrators, librarians and educators, the findings could inform library services redirection and library facility reinvention, and the development of strategic responses to first year students' transition needs in culturally diverse higher education.

Acknowledgement

Ethical clearance was provided by: Purdue University (protocol: 1608018036); Queensland University of Technology (ref: 1400000693); University of Colorado Denver (protocol: 15-0501); University of New Mexico (ref: 668383).

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